WHAT IS CLAIMED IS:

1. A resin coating solution used for preparing resin-coated steel sheet with improved adhesion after processing comprising:

(a) a main solution of water soluble phenoxy resin having a number average molecular weight of 25,000~50,000;

(b) 2~15 phr of melamine resin on the basis of said main solution;

(c) 10~20 phr of colloidal silica on the basis of said main solution; and

(d) water soluble ethylene-acryl resin containing 50-80% of ethylene and 50-20% of acryl resin and having a molecular weight of 20,000~50,000, in an amount of 5 to 15 phr on the basis of said main solution and/or 0.5~3.0 phr of phosphoric ester on the basis of said main solution.

2. A method of fabricating resin-coated steel sheet for a fuel tank of an automobile with improved adhesion after processing comprising the steps of:

coating on steel sheet with the resin coating solution of claim 1; and

baking drying the coated steel sheet at 160-250℃ so as to have a coating thickness of 2-10㎛.